IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.	: 10/781,855	Confirmation No.	: 1653
First Named Inventor	: Werner DOETSCH		
Filed	: February 20, 2004		
TC/A.U.	: 1761		
Examiner	: Chhaya D. Sayala		
Docket No.	: 101771.53046US		
Customer No.	: 23911		
Title	: Homogeneous, Boron-Doped Alkaline Earth Peroxides		

REPLY TO OFFICE ACTION

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This is a Reply to the non-final Office Action mailed December 31, 2007, in the above-identified patent application.

Claims 12-19 are pending, with claim 12 being the sole independent claim.

In the "Response to Arguments" section of the non-final Office Action dated December 31, 2007, the Examiner asserts, "The peroxide content in Table 1 is 50% wt/wt and the claimed amount is 'about 75 wt% or more'. Furthermore, Examples 4 and 5 pointed out by applicant contains no hydrogen peroxide, even though the claims expressly recite hydrogen peroxide." (Page 7).

Applicants point out that independent claim 12 recites a homogeneous, boron-doped alkaline earth peroxide having a boron content above 0.97 wt.% and below 1.6 wt.%, and a peroxide content of about 75 wt.% or more, calculated based on the active oxygen content.

What is claimed is a peroxide content of about 75 wt.% or more (calculated on the active oxygen content), and not a hydrogen peroxide content of about 75 wt.%. The claimed peroxide content includes the amount of alkaline earth peroxide and the optional amount of hydrogen peroxide further added.

The peroxide content calculated from active oxygen for examples 1, 4, and 5, used to illustrate the present invention, is disclosed in Table 4. The peroxide content amounts respectively to 84.2, 76.9, and 74.6 wt.%, corresponding to the claimed peroxide content, *i.e.*, about 75 wt.%.

Such peroxide contents result from the calcium peroxide content and the optional additional hydrogen peroxide content (see Table 1).

The objective evidence of non-obviousness is therefore well commensurate in scope with the claims and the arguments developed in the Reply to Office Action of October 31, 2007, reproduced below, are still accurate.

Claims 12-14 stand rejected under 35 U.S.C. § 102(b) as allegedly anticipated by JP 63270612 ("JP '612") or RU 2073436 ("RU '436"). Claims 12-14 and 19 stand rejected under 35 U.S.C. § 102(b) as allegedly anticipated by GB 1,580,248 ("GB '248"). Claims 12-19 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over U.S. Patent No. 6,193,776 ("Doetsch") in view of GB '248 and further in view of GB 1,575,792 ("GB '792"). These rejections are respectfully traversed. Reconsideration and withdrawal of the rejections are respectfully requested.

Applicants have surprisingly determined that an improvement in the stabilization of the alkaline earth peroxide can be achieved by limiting the boron content to the range of 0.97 to 1.6 wt.%. Specifically, while a boron content of 0.97 wt.% leads to a dry stability loss of 7% and a boron content of 1.6 wt.% leads to a dry stability loss of 4.4%, an intermediate boron content of 1.4 wt.% leads to an improved dry stability loss of only 2.9 wt.% (see, *e.g.*, Tables 1 and 5 and Examples 1, 4 and 5).

The determination that the claimed range of boron doping is associated with an unexpected improvement in stabilization represents a significant, practical advantage as compared to doping concentrations outside of the claimed range. A homogeneous, boron-doped alkaline earth peroxide having the required composition is not disclosed or suggested by any of the cited references.

JP '612 discloses oxygen-donating agents for agricultural use comprising an alkaline earth metal peroxide, at least one magnesium compound, for example, processed boron magnesium fertilizer, and a basic substance. JP '612 discloses neither a peroxide content of about 75 wt.% or more, calculated based on the active oxygen content, nor a boron content above 0.97 wt.% and below 1.6 wt.%, as recited in independent claim 12.

RU '436 discloses composition for preserving cut flowers containing 40-99.9 wt.% calcium peroxide and 0.2-60 wt.% boric acid.

GB '248 teaches a process for coating beet seed using a coating agent comprising calcium peroxide and other optional additives, which may include boron derivatives (page 1, lines 18-32 and page 2, lines 12-17). GB '248 discloses that the various optional additives (which in addition to the boron derivatives may include fertilizers, fungicides, insecticides, and agents that protect against herbicides) can comprise from 0 to 10 wt.% of the coating agent. GB '248 teaches that the boron derivatives, if used, may improve the quality of the coated beet. However, even if a boron derivative was selected from among the list of optional additives, GB '248 does not teach limiting the boron content to the claimed range of 0.97 wt.% to 1.6 wt.% nor does GB '248 provide any motivation to do so.

Doetsch discloses a mixed calcium-magnesium peroxide that may include an inorganic peroxygen stabilizer such as commercial phosphonic acids but is completely silent as to the incorporation of boron, much less the incorporation of boron in the range of 0.97 wt.% to 1.6 wt.%. This deficiency of Doetsch is not remedied by either secondary reference.

GB '792 relates to a process for stabilizing particles of peroxygenated compounds (see, e.g., page 1, lines 9-14 and page 3, lines 100-101). GB '792 teaches that the particles can be stabilized by coating them with a solid coating agent containing at least one boric compound (page 1, lines 85-89 and page 2, lines 1-9 and 94-130). Specifically, GB '792 teaches that the quantity of boric compound used in the coating agent is generally between 30 and 100 wt.%, and

that that quantity of solid coating agent corresponds to 0.5 to 20 wt.% in relation to the weight of the peroxygenated compound to be coated. Thus, GB '792 teaches that the boric compound can comprise from 0.15 to 20 wt.% relative to the peroxygenated compound. As with GB '248, however, GB '792 does not teach or suggest to limit the boron content to the claimed range of 0.97 wt.% to 1.6 wt.% or provide instruction to a skilled artisan that any advantage is associated with the claimed range.

None of the cited references discloses or suggests that a boron content above 0.97 wt.% and below 1.6 wt.% leads to an increased stability of the alkaline-earth peroxide.

As explained in MPEP § 2144.05, "The law is replete with cases in which the difference between the claimed invention and the prior art is some range or other variable within the claims. . . . In such a situation, the applicant must show criticality of a particular range, generally by showing that the claimed range achieves unexpected results relative to the prior art range. *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990)."

Applicants respectfully submit that the claimed range of boron doping achieves unexpectedly improved stabilization properties.

As noted above, Doetsch is completely silent as to any boron doping and GB '248 merely teaches that optional boron derivatives may improve the quality of the coated beet. And while GB '792 relates to a process for stabilizing particles of peroxygenated compounds, the process of GB '792 relates to applying a protective coating to the particles, and not to the homogeneous incorporation of boron throughout an alkaline earth peroxide.

As pointed out in the Reply filed on June 21, 2007, stabilization of alkaline earth peroxides by applying a coating to the particles is fundamentally different from stabilization achieved via the distribution of boron throughout the alkaline earth peroxide. Because of this fundamental difference, a skilled artisan would have no reason to believe that a boron concentration suitable for a stabilizing

coating would be effective as a homogenous dopant through the alkaline earth peroxide.

In view of the foregoing, the application is respectfully submitted to be in condition for allowance, and prompt favorable action thereon is earnestly solicited.

If there are any questions regarding this amendment or the application in general, a telephone call to the undersigned at (202) 624-2845 would be appreciated since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket #101771.53046US).

Respectfully submitted,

March 31, 2008

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